AimSafety PM₄₀₀
Multi-Gas Personal Monitor
Quick Start Guide

AimSafety
Portable Gas Detection Solutions
by Macurco

Please refer to the PM400 User's Manual at
www.aimsafety.com
for additional product information and features.

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**Product manuals, downloads, support,
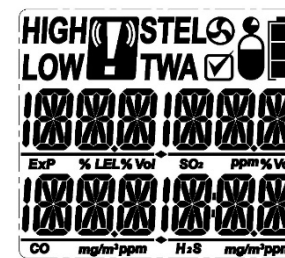and company information available at our website:**

www.aimsafety.com

Warnings

⚠ Replacing parts may affect the intrinsic safety of the device and/or void the warranty.
⚠ Please ensure the device is completely free of dirt and debris before use.
⚠ Test the performance of the sensors past the highest alarm setpoints regularly.
⚠ Test the device on a regular basis to ensure that the LED, alarm and vibration function properly.
⚠ Use the device under the conditions instructed, including the temperature, humidity and pressure range. Use in an environment outside the specified range may cause malfunction or failure.
⚠ The sensors inside the device may indicate the gas concentration differently according to the environment such as temperature, pressure and humidity. Please make sure to calibrate the detector under the same or similar environment to the specification.
⚠ Extreme changes in temperature may cause drastic changes of the gas concentration. (e.g. using the detector where there is a huge gap between the inside and outside temperature) Please use the device when the concentration becomes stable.
⚠ Severe pressure or impact may cause drastic changes of the gas concentration readings. Therefore, please use the device when the concentration is stable. Severe pressure or impact may cause also malfunction in the sensor or the device.
⚠ The alarms are set according to the international standard and must only be changed by an authorized expert.
⚠ Charging or replacing the battery should be done in a safe area where there is no risk of explosion or fire. Changing the sensor or battery with improper components, which are not authorized by the manufacturer, will void the warranty.
⚠ IR communication should be done in a safe area where there is no risk of explosion or fire.
⚠ Please use only after reading the manual.
⚠ The device is not a measurement device, but a gas detector.
⚠ Please stop using and consult the manufacturer if the calibration fails continuously.
⚠ Please test the device every 30 days under the atmospheric environment of clean air without gases.
⚠ Clean the exterior of the device with a soft cloth and do not clean it with chemical detergent.

Product Overview

Monitor

Display

Display Symbols

HIGH	High Alarm Display	Fresh Air Calibration Display
LOW	Low Alarm Display	Device Stabilization & Calibration Succeeded
⚠	Alarm Condition	Standard Gas Calibration Display
STEL	STEL Alarm Display	Remaining Battery Display
TWA	TWA Alarm Display	

Powering Up the Device

1. Press and hold the [Function] key.
2. A three second count-up appears on the screen. Release the [Function] key at any time during the count-up to prevent it from powering up.
3. Release the [Function] key when Power On displays.
4. The display cycles through gas types: LEL, O₂, CO, H₂S, firmware version: VER #.#, display tests and alarm tests, followed by a ten-second count-up, followed by Warming Up notifications (WUP) for each gas type.
5. **Note:** The LEL sensor takes approximately an extra 90 seconds to warm up, during which time, the unit continues to display WUP in the upper-left (LEL) corner of the display.

When real-time gas readings for all sensors are displayed, the PM400 is ready to use. **Note:** If your device is in Safe Zone mode, the display will read SAFE ZONE when it's ready. See Display Modes in the PM₄₀₀ User's Manual for more information.

Powering Down the Device

1. From the Main screen (Measurement or Safe Zone) , press and hold the [Function] button. A three-second countdown timer displays. **Note:** Release the button during the countdown to prevent it from powering down.
2. When Power Off displays, release the button.

Charging the Device

1. Ensure that the power supply is equipped with the interface that matches your wall's power outlet. You can change these by pushing the button at the rear of the power supply and clicking the correct one into place.
2. Locate the charging socket on the device. The socket is located back of the device at the bottom.
3. Align the guides of the adapter to the plastic slot on the device and push until the top of the adapter is completely inserted.
4. Plug the other end into a standard wall socket.
   The battery meter appears on the right side of the display and repeatedly cycles upward to the top while the LEDs flash continuously.
   Note: If your device is set to Stealth Mode, the LEDs will not flash.
5. The device is fully charged when the battery display reaches the top and stops cycling.

User Interface

The PM₄₀₀ has two display modes that dictate what appears on the Main screen. Use the PM Link software to switch between modes.

- **Measuring Mode** – Standard display operation with real-time gas readings always displayed.
- **Safe Zone Mode** – If enabled, displays SAFE ZONE unless one or more gas concentrations exceeds an alarm set point.
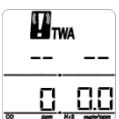
Menu Screens

Stealth Mode: Press the [Function key] to advance to Stealth Mode (if enabled). Stealth Mode is added to the menu to indicate that the audible and vibrating alarms are disabled. Display flags function normally.

Peak Min: Press the [Function key] again to advance to Peak MIN indicated by the LOW icon on the display (O₂ only), with the numerical value displayed. The Peak MIN is the lowest concentration of oxygen that the sensor has detected since the peaks were last cleared.
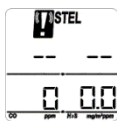
Peak Max: Press the [Function key] to advance to Peak MAX indicated by the HIGH icon on the display, with the peak max concentration displayed. The Peak MAX is the highest concentration of gas that each sensor has detected since the peaks were last cleared.
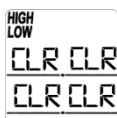
TWA: Press the [Function key] to advance to the TWA (Time Weighted Average) screen. The TWA screen displays the average level of concentration of each toxic gas for the past eight hours.

Menu Screens cont'd

STEL: Press the [Function key] to advance to the STEL (Short Term Exposure Limit) screen. The STEL screen displays the average level of concentration of each gas for the past 15 minutes.

Clear Peaks: Press the [Function key] to advance to Clear Peaks indicated by CLR on the display. To clear the peaks, press and hold the [Function key] for three seconds. The unit will beep once, then display OK.

Alarm Values: Press the [Function key] to advance to the alarm, high alarm, TWA, and STEL thresholds (Setpoints) for each gas. Press and hold the [Function] key for three seconds to enter the Alarm Values menu. Press the [Function] key to advance the display through each of these in order.

Firmware: Press the [Function key] to advance to the Firmware screen. Press and hold the [Function] key for three seconds to start a self-test. The device tests audible alarm, LEDs, LCD, vibration, memory, and temperature. When complete, the device returns to Measuring mode. See Self-Test in the User's Manual for details.

Menu Screens cont'd

Calibration: Press the [Function key] to advance to the Calibration screen. Press and hold the [Function] key for five seconds to enter the Calibration menu where you can perform Fresh Air calibrations, Span calibrations, and Bump tests. Press the [Function] key to advance through each of these in order.

Date/Time: Press the [Function key] to advance to the Date/Time screen. Press and hold the [Function] key for three seconds to toggle back and forth between the Date and the Time.

Menu Screens Flowchart

Bump Test

A bump test is used to test that the monitor is working properly. During a bump test, a known concentration of gas is applied to the sensor to verify that the sensor responds to the gas, and the alarms activate. This is the only way to effectively confirm that all characteristics of the monitor and the sensor are working correctly.

⚠ **A bump test should be conducted before each day's use.**
⚠ **Ensure that you are in a clean environment before performing a Bump Test.**

To perform a Bump Test:
1. On the Measuring screen, make sure oxygen reads 20.9 and the other sensors read zero.
2. Clip the calibration cap to the unit. The cap attaches to the recesses in either side of the unit. You should hear a click when the cap is secure. **Note:** Be sure you have the cap right-side up.
3. Ensure that the regulator is firmly attached to the gas bottle and that the hose is securely attached to the regulator and to the calibration cap.
4. From the Main screen, press the [Function] key to advance to the Calibration screen. The calibration icon and the Calibration gas settings are displayed. Typical readings clockwise from the upper-left are 50,18.0,25, and 100. **Note:** Pressing the key too quickly may not advance the display.
5. Press and hold the [Function] key for three seconds to enter the Calibration menu. CAL ZERO displays

Bump Test (cont'd)

6. Press the [Function] key twice to advance to the Bump Test screen. Bump test displays.
7. Press and hold the [Function] key to begin the bump test. GAS NO and a 45-second countdown timer are displayed.
8. Turn on the gas regulator. A new 45-second countdown timer appears in the lower-right corner while the rest of the display alternates between GAS IN and real-time gas measurements.
9. Watch the display as the timer count down. Results should appear within roughly 20 seconds. If the test is successful, OK appears in each corner of the display.
10. Turn off the gas regulator, disconnect the calibration cap, and wait for the gas to dissipate.
11. Clear peaks before proceeding. See Clear Peaks in the Menu Screens section for instructions.
⚠ **The monitor must be calibrated if it fails a Bump Test.**

Calibration

Please see the PM₄₀₀ User's Manual for complete calibration instructions.

Fresh Air Calibration adjusts the zero offset of the toxic and LEL sensors and sets the oxygen sensor to 20.9% Vol.
Span Calibration adjusts the sensors response to gas to account for sensor drift. It is recommended to perform a Fresh Air Calibration prior to a Span Calibration.

Alarm and Alert Indicators

Alarm	Alarm Standard	LCD Display	Alarms and Alerts
Low Alarm	Exceeds 1st alarm set point	LOW Icons and gas concentration	Buzzer, LED / Vibration
High Alarm	Exceeds 2nd alarm set point	HIGH Icons and gas concentration	Buzzer, LED / Vibration
TWA Alarm	Exceeds TWA alarm set point	TWA Icons and gas concentration	Buzzer, LED / Vibration
STEL Alarm	Exceeds STEL alarm set point	STEL Icons and gas concentration	Buzzer, LED / Vibration
Over Range Alarm	Detected gas(es) exceed maximum sensor range.	HIGH LOW OVL 20.9 0 0.0	Buzzer, LED / Vibration. Press the [Function] key or re-start your device to clear. See LEL Sensor Types for more information.
Bump test	Bump test due. Displays the specific sensor(s) which require a bump.	H2S BUM DUE	Perform a successful bump test to clear.
Calibration	Calibration due Displays the specific sensor(s) which require calibration.	H2S CAL DUE	Perform a successful calibration to clear.
Calibration Failed	Failed calibration Displays the specific sensor(s) which failed calibration.	OK FA OK OK	Perform a successful calibration to clear